85

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/662,153	Applicant(s) FRENGER ET AL.
	Examiner Ian N Moore	Art Unit 2661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1,3-30 and 32-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,7-10,14-17,22-28 and 32* is/are rejected.

7)☒ Claim(s) *4-6,11-13,18-21,29,30,33 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page15-23, filed April 30, 2004, with respect to the rejection(s)of claim(s) 1,3-30,32-34 under 35 USC § 102 and 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior arts.

Claim Objections

2. Claims 1, 17 and 30 are objected to because of the following informalities. Appropriate correction is required.

- Claim 1 recites, "...or use in data..." in line 1. It should be "...For use in data..."
- Claim 17 recites, "...the systematic bits..." in line 4. For consistency, it should be "...the systematic **information** bits..."
- Claim 30 recites, "...the first type bits..." in line 3. For consistency, it should be "...the information bits..."

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 9, 14, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "...sending **a lost signal** to the transmitter rather than a negative acknowledgment..." It is unclear how or what form does "a lost signal" send. It is unclear what signal is being lost since the claim refers to an absent of a data packet. A lost signal is just a signal, and it must be incorporated into some form of message or packet. Also, it is unclear whether a negative acknowledgement is a signal, packet, or etc.

Claims 9, 14, and 22 are also rejected for the same reasons as stated above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1,3,7,8, 10 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain (U.S. 6,434,114) in view of Fischer (U.S. 6,640,325).

Regarding claim 1, Jain'114 discloses for use in data packet transmissions between a transmitter (see FIG. 2, Switch 24) and a receiver (see FIG. 2, the combined system of Switch 25 and a New User 26) where a data packet includes a first type of bits corresponding to actual information bits (**note that data packet must include the payload/information data bits**), and a second type of bits corresponding to parity bits (**note that a packet must include a header/trailer with the parity bits for error detection/correction**), the information bits being more important to decoding than the parity bits, where a negatively

acknowledged packet triggers a retransmission of the parity bits to be used in a subsequent decoding operation at the receiver a method comprising:

detecting an absence of a data packet (**see FIG. 2, Packet Lost is detected**);

sending a lost signal to the transmitter (**see FIG. 2, retransmission request towards Switch 24**) rather than a negative acknowledgment (**note that retransmission is request is send from the combined system to switch 24 rather than a negative acknowledgment message**);

in response to the sending of the lost signal, receiving from the transmitter a first retransmission of the information bits of the data packet (**see FIG. 2, note that when SW 24 receives retransmission message from the combined system, it retransmits the lost packet which comprises the information bits**); and

decoding the first retransmission (**note that the combined system must decode the packet in order to determine if the packet is lost, and the retransmitted lost packet is received by utilizing well-known mechanism such as CRC, FCS, Sequence numbers, or etc.**); **see col. 4, lines 45-59**.

Jain'114 does not explicitly discloses where a negatively acknowledged packet triggers a retransmission of the bits (**see Fischer'325 FIG. 4, Step 404; see col. 2, lines 3-15; note that upon detecting error at the receiver, a negative acknowledgment is immediately sent to the transmitting node**).

However, the above-mentioned claimed limitations are taught by Fischer'325. In view of this, having the system of Jain'114 and then given the teaching of Fischer'325, it would have been obvious to one having ordinary skill in the art at the time the invention was made

to modify the system of Jain'114, for the purpose of providing a negative acknowledgment message when detecting error at the receiver, as taught by Fischer'325, since Fischer'325 states the advantages/benefits at col. 2, lines 11-19, that it would minimize the overhead cost of the network and time required to recover from packet due to lost errors in reduced. The motivation being that by providing the negative acknowledgment message due to error, it can improve the network performance.

Regarding claims 3, 10 and 32, Jain'114 discloses wherein the first retransmission also includes a first set of the parity bits of the data packet (**see FIG. 2, note that when SW 24 receives retransmission message from the combined system, it retransmits the lost packet which comprises the header/trailer bits such as parity bits for error detection/correction**).

Regarding claim 7, the combined system of Jain'114 and Fischer'325 discloses detecting absent of a data packet as described above in claim 1. Fischer'325 further discloses lost/absent of a data packet determining that a packet with a particular identifier expected to be received has not received in an expected time period (**see col. 1, lines 31-46; note that a data packet lost is determined when there is a gap in a sequence number of received packet, and a lost packet is discovered via a software timeout (i.e. not receiving in a expected time period)**).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Jain'114as taught by Fischer'325 for the same reason stated in Claim 1 above.

Regarding claim 8, the combined system of Jain'114 and Fischer'325 discloses detecting absent of a data packet as described above in claim 1. Fischer'325 further discloses an absent/lost packet by comparing a decoding result for the packet with a threshold (**see col. 1, lines 31-46; note that a data packet lost is determined by comparing/matching sequenced numbers (i.e. decoding result) in a series of packets with the pre-determined/threshold of sequence numbers in order to identify the gap. In order to determine the sequence number of a received packet (i.e. a decoding result), the packet must be decoded**.)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Jain'114as taught by Fischer'325 for the same reason stated in Claim 1 above.

5. Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jain'114 and Fischer'325, and further in view of Osthoff (WO 98/05140).

Regarding claim 9, Jain'114 discloses a method of processing received encoded data packets (**see FIG. 2, the combined system of Switch 25 and a New User 26 process the received encoded data packets**), each encoded data packet including first group of bits corresponding to actual information bits (**note that data packet must include the payload/information data bits**) and second group of bits corresponding to actual information bits (**note that a packet must include a header/trailer with the parity bits for**

error detection/correction), where the information bits are more important to decoding the data packet than the parity bits, comprising:

decoding a received packet (**see FIG. 2, the combined system must decode the received packet in order to determine if the packet is corrupted/lost/error; see FIG. 2, Packet Lost is detected**);

sending a lost signal (**see FIG. 2, retransmission request towards Switch 24**) rather than a negative acknowledgment (**note that retransmission is request is send from the combined system to switch 24 rather than a negative acknowledgment message**);

receiving a first retransmission of the information bits of the data packet (**see FIG. 2, note that when SW 24 receives retransmission message from the combined system, it retransmits the lost packet which comprises the information bits**); and

decoding the first retransmission (**note that the combined system must decode the packet in order to determine if the packet is lost, and the retransmitted lost packet is received by utilizing well-known mechanism such as CRC, FCS, Sequence numbers, or etc.**); **see col. 4, lines 45-59**.

Jain'114 does not explicitly discloses producing an interim decoding result (**see Fischer'325, see col. 1, lines 31-46; note that in order to determine the sequence number of a received packet (i.e. an interim decoding result), each received packet must be decoded**);

determining if the interim decoding result is above a threshold (**see Fischer'325, see col. 1, lines 31-46; note that a determination process is performed by**

comparing/matching sequenced numbers (i.e. an interim decoding result) in a series of packets with the pre-determined/threshold of sequence numbers);

if the interim decoding result indicates the interim decoding result is at or above the threshold **(see Fischer'325, see col. 1, lines 31-46; note that when there is a gap (i.e. the received sequence number is above expected/threshold number) between the sequence number of received packets and the pre-determined/threshold of sequence numbers); ,**

sending a negative acknowledgement signal to trigger a retransmission of the bits **(see Fischer'325 FIG. 4, Step 404; see col. 2, lines 3-15; note that upon detecting error at the receiver, a negative acknowledgment is immediately sent to the transmitting node)**;

However, the above-mentioned claimed limitations are taught by Fischer'325. In view of this, having the system of Jain'114 and then given the teaching of Fischer'325, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Jain'114, for the purpose of providing a negative acknowledgment message when detecting a gap at the receiver, as taught by Fischer'325, since Fischer'325 states the advantages/benefits at col. 2, lines 11-19, that it would minimize the overhead cost of the network and time required to recover from packet due to lost errors in reduced. The motivation being that by providing the negative acknowledgment message due to error, it can improve the network performance.

Neither Jain'114 nor Fischer'325 explicitly discloses sending a message to trigger a retransmission of the parity bits.

However, the above-mentioned claimed limitations are taught by Osthoff'140. In particular, Osthoff'140 teaches decoding a received packet to produce an interim decoding

results (**see FIG. 1b, steps STS2; note that a received packet is decoded in order to produce the result if there is any error; see page 18, paragraph 2-3**);

determing if the interim decoding results indicates an error in the received packet (**see FIG. 1b, step STS3; note that the result from ST2 is determine if there is any error; see page 18, paragraph 2-3) and determining if the interim decoding result is at or above the threshold (see FIG. 1b, step ST5, note that when there is an error and it is further determine whether it is acceptable steady level of improvement and amount/threshold of error (i.e. threshold));**

sending a message signal to trigger a retransmission of the parity bits (**see FIG. 1b, step ST6, after determining both level of improvement and amount/level of error are at the acceptable range/threshold, a request is send to the transmitter to retransmit the additional parity bits; see page 18, paragraph 1-2**);

if the interim decoding result is not above the threshold, sending a signal (**see FIG. 1b, step ST7, after determining both level of improvement and amount/level of error is at not at the acceptable range/threshold (i.e. below the acceptable range/threshold), a request is send to the transmitter to retransmit the packet of information bits; see page 17, paragraph 3 and see page 18, paragraph 2-3**);

In view of this, having the combined system of Jain'114 and Fischer'325, then given the teaching of Osthoff'140, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Jain'114 and Fischer'325, for the purpose of providing mechanism to sending a message to retransmit the parity bits, as taught by Osthoff'140, since Osthoff'140 states the advantages/benefits at see

page 10, paragraph 2-3 that it would provide simultaneous error correction in the receiver to both parity bits and erroneous information bits. The motivation being that by requesting to retransmits the parity bits, it can improve the network performance since the errors are being corrected simultaneously.

6. Claims 14,17,22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayanoglu in view of Jain'114.

Regarding Claim 14, Ayanoglu'883 discloses an apparatus for use in a transmitter which transmits data over a communications channel (see FIG. 1, Transceiver 20), comprising:

a signal processor (see FIG. 1, Processor 26) configured to process data and generates corresponding systematic information bits and parity bits (see col. 3, line 47 to col. 4, line 65; note that the data packet/word includes two types of bits: **vertical parity bits/words, and systematic/regular information words/bits**);

a combiner (see FIG. 1, the combined system of Processor 26 and memory 28) configured to selectively receive systematic and parity bits and generate a coded data packet (see transmitted parity checking bits in FIG. 2 and col. 3, line 47 to col. 4, line 41; note that the combined system of processor and memory selectively processes/generates different types of parity bits/words (i.e. vertical/horizontal parity bits and/or information bits) and transmit the data over the air);

transceiving circuitry (see FIG. 1, a combined system which consists of Receiver RECV 24 and Transmitter XMIT 22 of transceiver 20) configured to transmit coded data

packets over the communications channel (see col. 3, line 34-65; note that since Transceiver 230 is the radio transmitter, it must transmit coded data over the air);

a controller (see FIG. 1, the combined system of Processor 26 and memory 28) configured to control which bits are selected by the combiner to generate the coded data packet based on feedback from a receiver (see col. 3, line 47 to col. 4, line 65; note the combined system of processor and memory also retransmits the requested and selected parity bits in the coded data/packet to the receiver),

wherein when a negative acknowledgment is received, parity bits are retransmitted over the communications channel to the receiver (**see FIG. 3A, step 250 and 290; col. 2, line 19-31; col. 5, line 24 to col. 6 line 57; see col. 10, lines 32 col. 11, line 5, 54-67; note that the receiver requests the retransmission of parity bits from the transmitter over the communication channel and the parity bits are retransmitted to the receiver. A request for the parity bits from the transmitter is the negatively acknowledged message since it is used to inform the transmitter regarding the error/failure/ negativity of the packet transmission and requesting to retransmit the parity bits**);

when no acknowledgment or negative acknowledgment is received, the systematic information bits are retransmitted over the communications channel to the receiver (**see col. 2, line 19-30; col. 10, line 46-55; col. 11, lines 12-44, see col. 12, lines 16-26; and see FIG. 3D, step 410, 460, 480; note that the receiver requests the retransmission of all systematic/regular information data bits from the transmitter over the communication channel and the all information data bits are retransmitted to the receiver. A request for the all bits from the transmitter is the negatively acknowledged message since it is**

used to inform the transmitter regarding the error/failure/negativity of the packet transmission and requesting to retransmit all information bits).

Ayanoglu'883 does not explicitly discloses when a lost signal is received (**see Jain'114 FIG. 2, Packet Lost is detected and retransmission request is send to Switch 24**) retransmitting the bits/packet over the communication channel to the receiver (**see Jain'114 FIG. 2, note that when SW 24 receives retransmission message from the combined system, it retransmits the lost packet which comprises the information bits**); **see col. 4, lines 45-59.**

However, the above-mentioned claimed limitations are taught by Jain'114. In view of this, having the system of Ayanoglu'883 and then given the teaching of Jain'114, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ayanoglu'883, for the purpose of sending a lost of packet message to the transmitter to retransmit the bits/packet, as taught by Jain'114, since Jain'114 states the advantages/benefits at col. 4, lines 45-57, that it would provide a real time service of efficient retransmission. The motivation being that by retransmitting a lost packet to the CPE user, it can improve the network performance while satisfying the CPE end user request.

Regarding claim 17, the combined system of Ayanoglu'883 and Jain'114 discloses wherein when a lost signal is received or no acknowledgment or negative acknowledgment is received, the systematic information bits are retransmitted over the communications channel to the receiver as described above in claim 14. Jain'114 further discloses retransmitting systematic information bits along with parity bits originally transmitted with the systematic

information bits (**see FIG. 2, Packet Lost and retransmission request; see col. 4, lines 46-59; note that upon detection a lost packet retransmission request message, SW 24 retransmits the packet entire packet. Thus, it is clear that retransmitted packet contains both information bits and parity bits that were sent originally**).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ayanoglu'883 as taught by Jain'114 for the same reason stated in Claim 14 above.

Regarding Claim 22, Ayanoglu'883 discloses an apparatus for use in a receiver which receives data over a communications channel (**see FIG. 1, Transceiver 30**), comprising:

transceiving circuitry (**see FIG. 1, a combined system which consists of Receiver RECV 34 and Transmitter XMIT 32 of transceiver 30**) configured to receive a coded data packet transmitted over the communications channel by a transmitter (**see col. 3, line 34-47; note that since Transceiver 30 is the radio receiver, it must receive encoded/coded data over the air**), where an initially transmitted coded data packet includes a first type of bits corresponding to actual information bits and a second type of bits corresponding to parity bits(**see col. 4, line 42-54 and col. 20, line 12-16; note that the data packet/word includes two types of bits: vertical parity bits/words and information words/bits**), the information bits being more important to decoding than the parity bits (**see col. 2, line 19-30; note that essential/importance of the parity/informational bits/words can be either vertical/horizontal parity bits, information words/bits, or combination of bits since the**

additional words/bits are used to perform during correction/detection iterations in the receiver. The determination requirement of either the first/second type/group bits/words or both depends on the receiver. If these parity bits/words are important/essential for the receiver to decode, then those parity bits/words belong the first type/group, which needs to be sent first);

packet processing circuitry (**see FIG. 1, Processor 36**) configured to detect the error in a packet and to transmit the retransmitting negative acknowledgment to the transmitter (**see col. 2, line 1-19; col. 5, line 24 to col. 6 line 57; note the receiver detects errors by utilizing experiencing errors thresholds on the working channels; thus, the error is detected when either corrupted data packet or erroneous data/packet is received**),

and thereafter, to decode a first retransmission of the expected packet which includes the bits (**see col. 2, line 32-50, col. 10, line 32 to col. 11, line 5; note that according to the request, the receiver receives the requested additional bits from the transmitter in the retransmission packet/data. Also, note that the bits/words of the data packet can be any bits, which are important to the receiver. Also, see col. 2, line 32-50; note that the receiver utilizes the addition bits to correct the error during the decoding process in the radio receiver**.)

Ayanoglu'883 does not explicitly disclose detecting an absence of a data packet (**see Jain'114 FIG. 2, Packet Lost is detected**);

sending a lost signal to the transmitter (**see Jain'114 FIG. 2, retransmission request towards Switch 24**) rather than a negative acknowledgment (**note that retransmission is**

request is send from the combined system to switch 24 rather than a negative acknowledgment message);

the expected packet which includes the information bits (**note that the combined system must decode the packet in order to determine if the packet is lost, and the retransmitted lost packet is must include the information data bits**); **see col. 4, lines 45-59**.

However, the above-mentioned claimed limitations are taught by Jain'114. In view of this, having the system of Ayanoglu'883 and then given the teaching of Jain'114, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ayanoglu'883, for the purpose of sending a lost of packet message to the transmitter to retransmit the bits/packet, as taught by Jain'114, since Jain'114 states the advantages/benefits at col. 4, lines 45-57, that it would provide a real time service of efficient retransmission. The motivation being that by retransmitting a lost packet to the CPE user, it can improve the network performance while satisfying the CPE end user request.

Regarding Claim 23, the combined system of Ayanoglu'883 and Jain'114 discloses sending a lost signal to the transmitter when there is an absent of the packet as described in claim 22. Ayanoglu'883 further discloses wherein the packet processing circuitry includes:

a decoder (**see FIG. 1, the combined system of Processor 36 and MEM 38**) for decoding a received data packet, and

wherein if the data packet cannot be properly decoded (**see col. 2, line 12-19; the receiver detects and correct the error utilizing parity checking bits, information bits,**

and/or both, and the receiver determines whether the result after the preliminary error correction is sufficient to correct all errors in the block/packet),

a negative acknowledge/request is sent to the transmitter (**see FIG. 3A, step 250 and 290; col. 2, line 19-31; col. 5, line 24 to col. 6 line 57; col. 11, line 54-67; note that the receiver sends the negative acknowledgment retransmission request when it detects that the running sum is higher than thresholds (i.e. working channel has transmission errors)**). Thus, it is clear that Jain'114's lost signal message can also be sent when the received packet data is entirely corrupted since it will be impossible to recover/perform the error correction.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Ayanoglu'883 as taught by Jain'114 for the same reason stated in Claim 22 above.

7. Claims 24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayanoglu'883 and Jain'114, as described above in claim 22, and further in view of Kalliojarvi (U.S. 6,438,723).

Regarding claim 24, the combined system of Ayanoglu'883 and Jain'114 discloses all aspects of the claimed invention set forth in the rejection of Claim 22 as described above, and further teaches the pack processing circuitry.

Neither Ayanoglu'883 nor Jain'114 explicitly discloses a buffer for storing received data packet information; a combiner for combining buffer information with retransmitted

information; a decoder for decoding an output of the combiner; and a controller coupled to the buffer, combiner, and decoder.

However, the above-mentioned claimed limitations are taught by Kalliojarvi'723. In particular, Kalliojarvi'723 teaches a buffer for storing received data packet information (see FIG. 6, RX Buffer 603);

a combiner for combining buffer information with retransmitted information (see FIG. 6, RX Buffer 603 which has combination functionality);

a decoder for decoding an output of the combiner (see FIG. 6, the combined decoding system of EC decoder 603 and ED decoder 605); and

a controller (see FIG. 6, the combined system of Retransmission Control 606 and Metrics Memory 604) coupled to the buffer, combiner, and decoder. Also, see col. 12, line 52 to col. 13, line 12.

In view of this, having the combined system of Ayanoglu'883 and Jain'114, and then given the teaching of Kalliojarvi'723, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Ayanoglu'883 and Jain'114, by providing detailed components of the processing unit, as taught by Kalliojarvi'723. The motivation to combine is to obtain the advantages/benefits taught by Kalliojarvi'723 since Kalliojarvi'723 states at col. 2, line 40-54 that such modification would increase good efficiency and acceptable robustness against error in the packet transmission.

Regarding claim 26, the combined system of Ayanoglu'883, Jain'114 and Kalliojarvi'723 discloses all aspects of the claimed invention set forth in the rejection of Claim 24 as described above, and Ayanoglu'883 further teaches the pack processing circuitry utilizing the adaptive ARQ/FEC techniques for transmission (see Ayanoglu'883 col. 1, line 49-64). Also, Kalliojarvi'723 teaches that packet processor includes the buffer and the combiner. Thus, it is clear that the buffer and the combiner perform an incremental redundancy operation, which is performed by the redundancy scheme such as ARQ between the transmitter and receiver.

In view of this, having the combined system of Ayanoglu'883 and Jain'114, and then given the teaching of Kalliojarvi'723, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Ayanoglu'883 and Jain'114, by applying the ARQ redundancy operation in the buffer and combiner, as taught by Kalliojarvi'723 for the same motivation as stated above in claim 24.

Regarding claim 27, the combined system of Ayanoglu'883, Jain'114 and Kalliojarvi'723 discloses all aspects of the claimed invention set forth in the rejection of Claim 24 as described above, and Kalliojarvi'723 further teaches the decoder performs error correction (see FIG. 6, EC Decoder 603, i.e., error correcting decoder) and the packet processing circuit further detects errors in the output of the decoder. (See FIG. 6, ED Decoder, i.e., error detecting decoder at the output of the error correction decoder; and col. 12, line 52 to col. 13, line 12).

In view of this, having the combined system of Ayanoglu'883 and Jain'114, and then given the teaching of Kalliojarvi'723, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Ayanoglu'883 and Jain'114, by performing error correction and detection in the decoders, as taught by Kalliojarvi'723 for the same motivation as stated above in claim 24.

Regarding claim 28, the combined system of Ayanoglu'883, Jain'114 and Kalliojarvi'723 discloses all aspects of the claimed invention set forth in the rejection of Claim 24 as described above, and Ayanoglu'883 further teaches sending a negative acknowledgment signal to the transmitter. Kalliojarvi'723 also teaches wherein if the decoder output is not acceptable, the controller sends a signal to the transmitter (see FIG. 6, Retransmission Control and the ED Decoder 605; and col. 12, line 52 to col. 13, line 12; note that if the errors are detected after being corrected, they are forwarded to retransmission unit, and retransmission unit sends the request back to the transmitter unit).

In view of this, having the combined system of Ayanoglu'883, Jain'114 and then given the teaching of Kalliojarvi'723, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Ayanoglu'883 and Jain'114, by sending a request/signal to the transmitter if erroneous data packet is detected after being corrected for retransmission, as taught by Kalliojarvi'723 for the same motivation as stated above in claim 24.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ayanoglu'883, Jain'114, and Kalliojarvi'723 as applied to claim 22 and 24 above, and further in view of Eroz.

Regarding claim 25, the combined system of Ayanoglu'883, Jain'114 and Kalliojarvi'723 discloses all aspects of the claimed invention set forth in the rejection of Claims 22 and 24 as described above, and further teaches the decoder.

Neither Ayanoglu'883, Jain'114, nor Kalliojarvi'723 explicitly the decoder is a turbo decoder.

However, the above-mentioned claimed limitations are taught by Eroz'669. In particular, Eroz'669 teaches discloses using a turbo encoder (see FIG. 2, Turbo code encoder 232; see col. 2, line 42 to col. 3, line 52 and see col. 6, line 19-52).

In view of this, having the combined system of Ayanoglu'883, Jain'114, and Kalliojarvi'723, then given the teaching of Eroz'669, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Ayanoglu'883, Jain'114, and Kalliojarvi'723, by providing turbo decoder, as taught by Eroz'669. The motivation to combine is to obtain the advantages/benefits taught by Eroz'669 since Eroz'669 states at col. 2, line 140 that such modifications would minimize implementation complexity and increase the redundancy scheme in the CDMA network.

9. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayanoglu'883 and Jain'114, as described above in claim 14, and further in view of Eroz (U.S. 6,370,669).

Regarding claim 15, the combined system of Ayanoglu'883 and Jain'114 discloses the signal processor and combiner as a combined system as disclosed above in claim 14.

Ayanoglu'883 does not explicitly disclose using a turbo encoder.

However, the above-mentioned claimed limitations are taught by Eroz'669. In particular, Eroz'669 teaches discloses using a turbo encoder (see FIG. 2, Turbo code encoder 208; see col. 2, line 42 to col. 3, line 52 and see col. 6, line 19-52).

In view of this, having the combined system of Ayanoglu'883 and Jain'114, and then given the teaching of Eroz'669, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Ayanoglu'883 and Jain'114, by providing a turbo encoder, as taught by Eroz'669. The motivation to combine is to obtain the advantages/benefits taught by Eroz'669 since Eroz'669 states at col. 2, line 140 that such modifications would minimize implementation complexity and increase the redundancy scheme in the CDMA network.

Regarding claim 16, Ayanoglu'883 discloses the communication channel is the radio channel (see FIG. 1, system 10, a wireless system; col. 3, line 34-40; thus the communication channel must be the radio channel).

Allowable Subject Matter

10. Claims 4-6,11-13, 18-21, 29, 30, 33 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 4-6,11-13, 18-21, 29, 30, 33 and 34 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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INM
6/15/04

KENNETH VANDERPUYE
PRIMARY EXAMINER